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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,065

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Shinichiro Nishimura

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WENDEROTH, LIND & PONACK, L.L.P.

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SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

BLAND, LAYLA D

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

11/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,065	Applicant(s) NISHIMURA ET AL.	
	Examiner Layla Bland	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/13/2006, 9/22/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is a national stage entry of International Application No. PCT/JP04/19384, filed December 24, 2004, which claims priority to Japanese Application No. 2003-433717, filed December 26, 2003. Claims 1-10 are pending in this application and are examined on the merits herein.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-10 recite the limitations "OH-protecting group," "amino-protecting groups," and/or "carboxyl protecting group." Although exemplary protecting groups are set forth in the specification, the terms are not defined. Absent a clear definition, one skilled in the art would not be apprised of which protecting groups, and in which combinations, are suitable for the invention.

Claims 3 and 7 recite the limitation "substituting the nitro group of the azide disaccharide compound with a leaving group." Although acetate is exemplified as a leaving group in the specification, "leaving group" is not defined. Absent a clear definition, one skilled in the art would not be apprised of which leaving groups are suitable for the invention.

Claim 4 recites the limitation "coupling of the reducing terminal of the trisaccharide compound above with the protected asparagine derivative." It is unclear which trisaccharide compound should be coupled with a protected asparagine derivative, as no trisaccharide structure has been given in claim 4. Furthermore, there is no previous recitation of an asparagine derivative in claim 4 or claims 1-3, from which claim 4 depends. There is insufficient antecedent basis for this limitation in the claim.

Claims 4 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: those which comprise "coupling." Claims 4 and 8 are drawn to a method comprising coupling the reducing terminal of the trisaccharide compound with a protected asparagine derivative. The trisaccharide compound (III), which is assumed to be the trisaccharide compound intended in claim 4, and the asparagine-linked trisaccharide (IV) have structural differences beyond simple coupling of the asparagine derivative and the reducing terminal of the trisaccharide. For example, compound (III) contains an azide functionality while compound (IV) does not, and compound (IV) contains an unprotected amine and unprotected hydroxyl which are protected in compound (III). The simple method step "coupling" does not account for these differences. If "coupling" is intended to comprise multiple reaction steps, these must be included in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Bolem et al. (Carbohydrate Research 312 (1998) 85-89, PTO-1449 submitted September 13, 2006).

Bolem et al. teach D-mannobiose octaacetate obtained by acetylation of a mannose-mannobiose mixture, which was obtained from a mannanase digest of ivory nut mannan [page 86, last paragraph].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et al. (Glycoconjugate Journal (1994) 11: 105-110) in view of Bolem et al. (Carbohydrate Research 312 (1998) 85-89, PTO-1449 submitted September 13, 2006).

Usui et al. teach the production of the common synthetic intermediate Man β 1-4GlcNAc β 1-4GlcNAc from mannobiose (Man β 1-4Man) [see abstract and Introduction].

Usui et al. do not teach a process of producing mannobiose comprising hydrolyzing a polysaccharide and protecting the OH groups of the resulting hydrolysate.

Bolem et al. teach as set forth above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare $\text{Man}\beta 1\text{-4GlcNAc}\beta 1\text{-4GlcNAc}$ using D-mannobiose obtained by the method of Bolem et al. Usui et al. teach that mannobiose can be used for the production of a useful synthetic intermediate and Bolem et al. teach a process of preparing the mannobiose. The skilled artisan could have combined the two references and predicted the success of such a combination based on the teachings of Usui et al. and Bolem et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Layla Bland whose telephone number is (571) 272-9572. The examiner can normally be reached on M-R 8:00AM-5:00PM UST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571) 272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Layla Bland
Patent Examiner
Art Unit 1623
November 16, 2007

Shaojia Anna Jiang


Supervisory Patent Examiner
Art Unit 1623
November 16, 2007